

# VAP Development: Initiation, Development, Evaluation and Release

Michael Jensen<sup>1</sup>, Scott Collis<sup>2</sup>, Jermone Fast<sup>3</sup>, Connor Flynn<sup>3</sup>, James Mather<sup>3</sup>,  
Sally McFarlane<sup>3</sup>, Justin Monroe<sup>4</sup>, Chitra Sivaraman<sup>3</sup>, Shaocheng Xie<sup>5</sup>

<sup>1</sup>Brookhaven National Laboratory, Upton, New York, <sup>2</sup>Argonne National Laboratory, Argonne, IL,

Pacific Northwest National Laboratory, Richland, WA, <sup>4</sup>University of Oklahoma, Norman, OK,

<sup>5</sup>Lawrence Livermore National Laboratory, Livermore, CA

Corresponding author: Mike Jensen, mjensen@bnl.gov, (631) 344-7021

## ABSTRACT

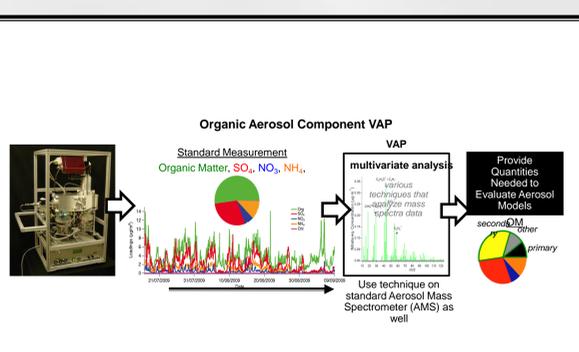
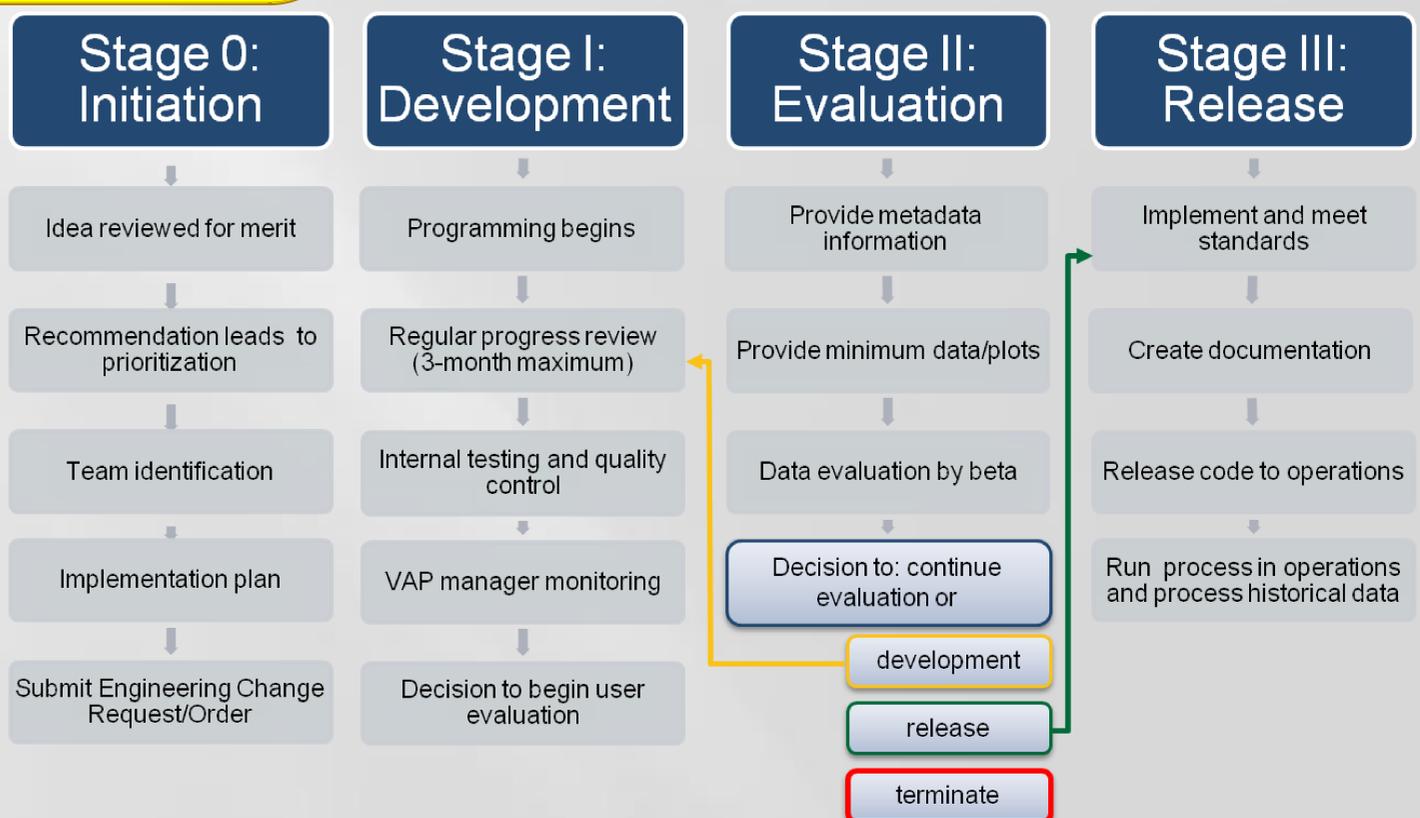
ARM value-added products (VAPs) provide an important translation between the instrumental measurements and the geophysical quantities needed for scientific analysis, particularly model parameterization and development. The production of VAPs is the responsibility of the ARM infrastructure (translators and developers) with guidance from the ASR science working groups. In recent years, a review of the VAP development process has helped to identify improved pathways for the timely delivery of quality-controlled data products important for scientific inquiry and advancement. This poster outlines the pathway from a geophysical quantity produced from an individual scientist's retrieval algorithm to a production-level product provided by the ARM infrastructure

## TAKE HOME MESSAGE

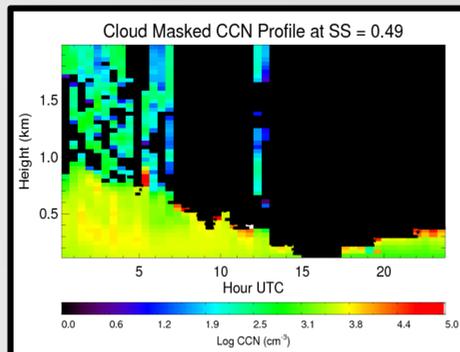
- 1) Newly formalized framework for development of VAPS through four different stages: Initiation, Development, Evaluation and Release.
- 2) Evaluation stage requires a minimum of three beta-users. ASR science team members will be asked to evaluate initial products relevant to their research areas.
- 3) Decision tree at conclusion of six month evaluation stage may lead to: Further evaluation, continue development towards official release, terminate further development but release dataset, terminate further development and withdraw VAP.

## VAP DEVELOPMENT IDEAS

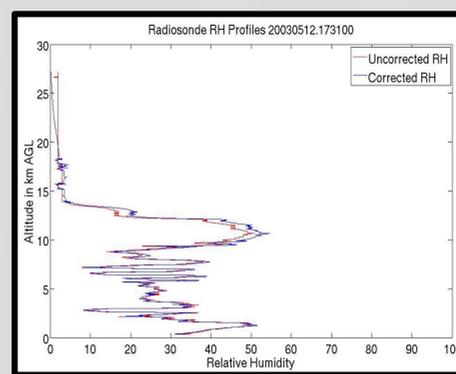
- Proposed by members of the ASR science team
  - Generally robust, peer-reviewed algorithms
  - Prioritized by ASR working groups
  - Implemented by translator/development team
- Translators:
- Aerosol Life Cycle  
Connor Flynn, Jerome Fast
  - Clouds and Precipitation Interaction  
Sally McFarlane, Shaocheng Xie, Jerome Fast
  - Cloud Life Cycle  
Michael Jensen, Shaocheng Xie



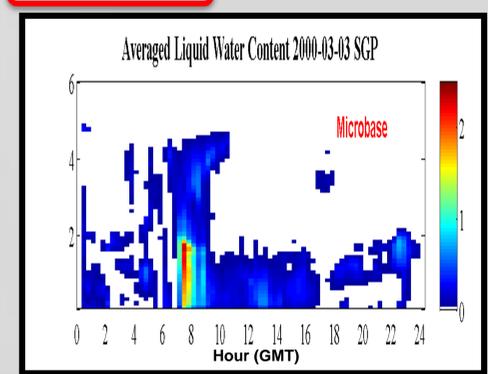
**INITIATION STAGE** - Organic Aerosol Component Analysis is primarily based on multivariate analysis of the AMS organic mass spectral (MS) matrix.



**DEVELOPMENT STAGE** - CCN profile below cloud base derived from the Raman Lidar extinction for Jan 4, 2007 at SGP using the surface-measured CCN at 0.49% supersaturation and the surface measured humidification factor



**EVALUATION STAGE** - The sonde-adjust VAP produces data that corrects documented biases in RS-80, RS-90 and RS-92 radiosonde humidity measurements.



**RELEASE STAGE** - Microbase provides time-continuous information on cloud location, liquid and ice water contents, and effective droplet sizes as a function of height

## REFERENCES

Jensen M, S Collis, J Fast, C Flynn, J Mather, S McFarlane, J Monroe, C Sivaraman, and S Xie. 2011. [VAP Development: Initiation, Development, Evaluation, and Release](#). DOE/SC-ARM/TR-093

## ACKNOWLEDGEMENTS

Special thanks to Lynne Roeder for designing the flowchart and Krista Gaustad and Robin Perez for comments on the white paper